~~87~~ OILS, FATS AND GLUE.

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BRITISH 3490 OF 1870

18/24

425/270

A.D. 1867. DEC. 7. No. 3490.
BEATTY'S SPECIFICATION.

Oil Mills & Apparatus

1 Sheet.

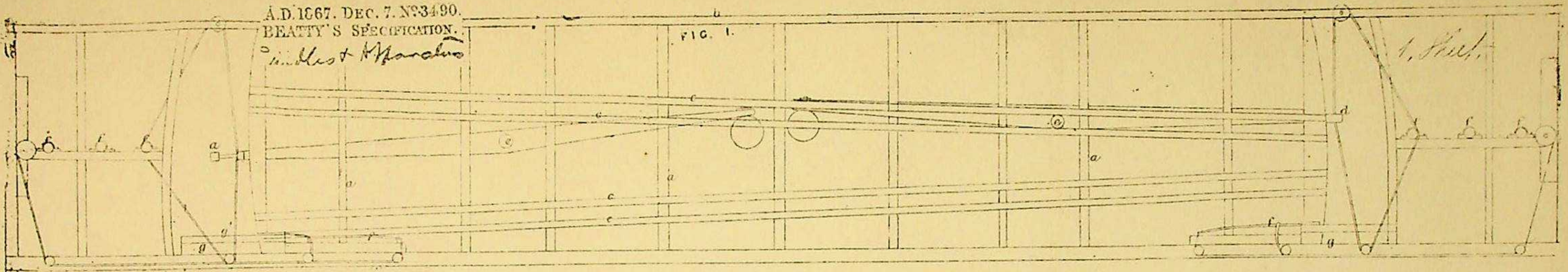


FIG. 1.

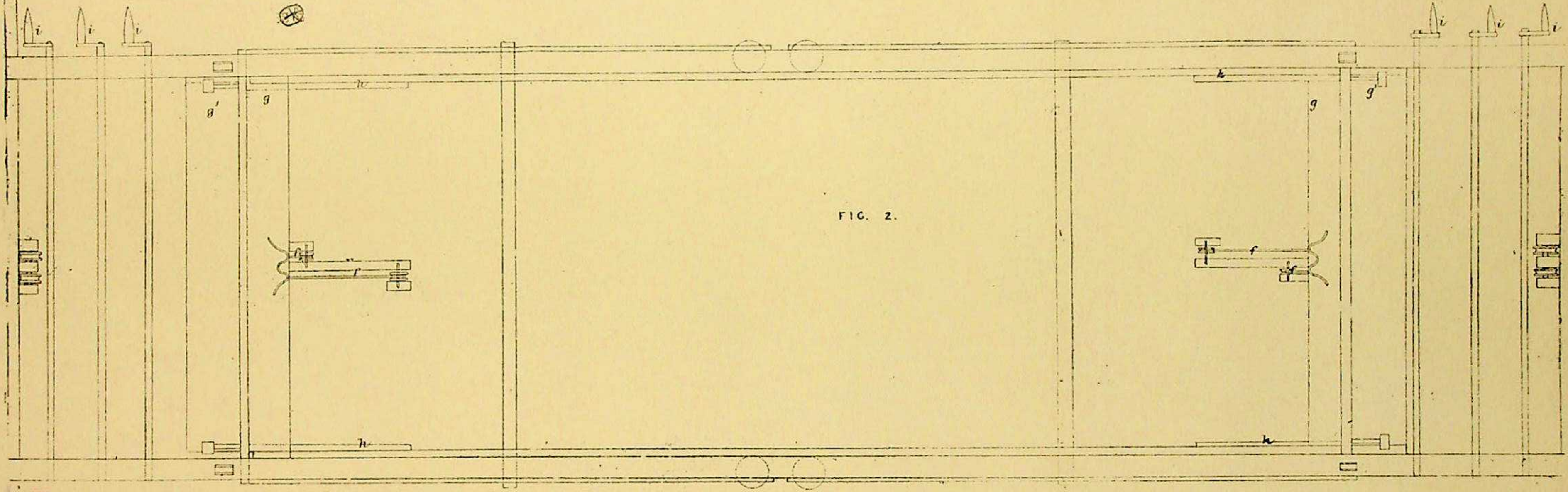
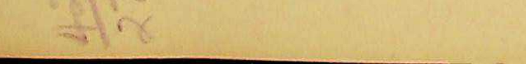


FIG. 2.

FIG. 3.



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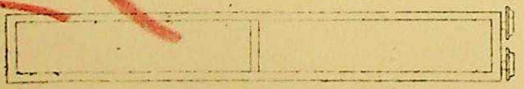


FIG. 6.

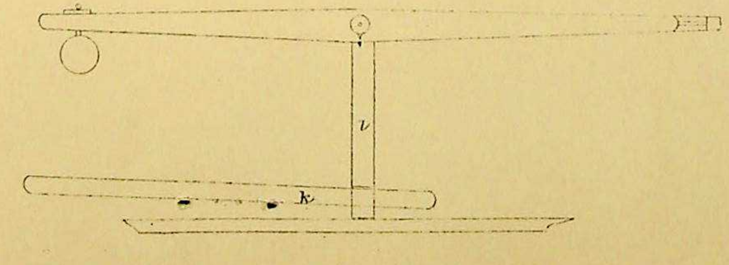
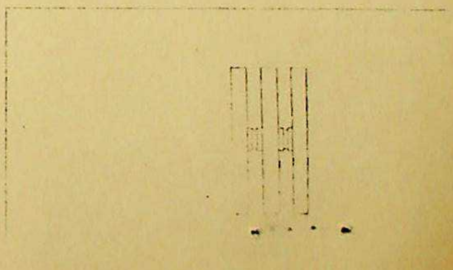


FIG. 5.



OILS, FATS AND GLUE. BRITISH 3490 OF 1870
Candle Apparatus.

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A.D. 1867. DEC. 7. Nº 3490.
BEATTY'S SPECIFICATION.
Candles & Apparatus

1, Sheet.

FIG. 1.

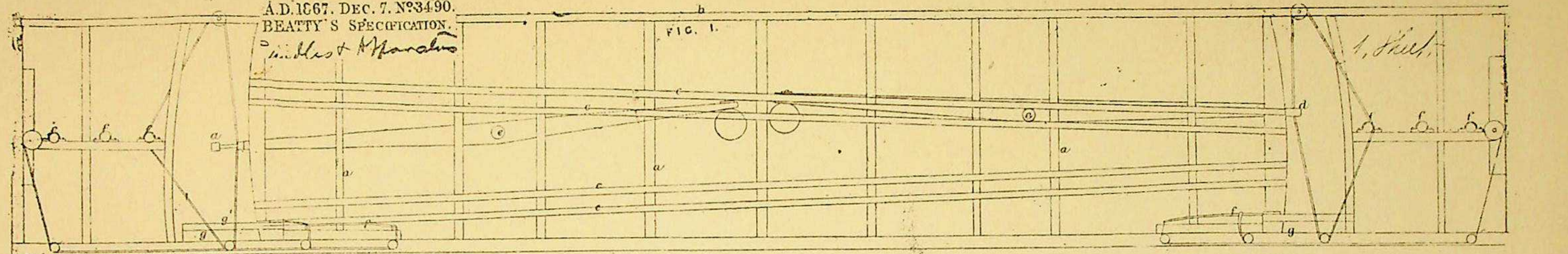


FIG. 2.

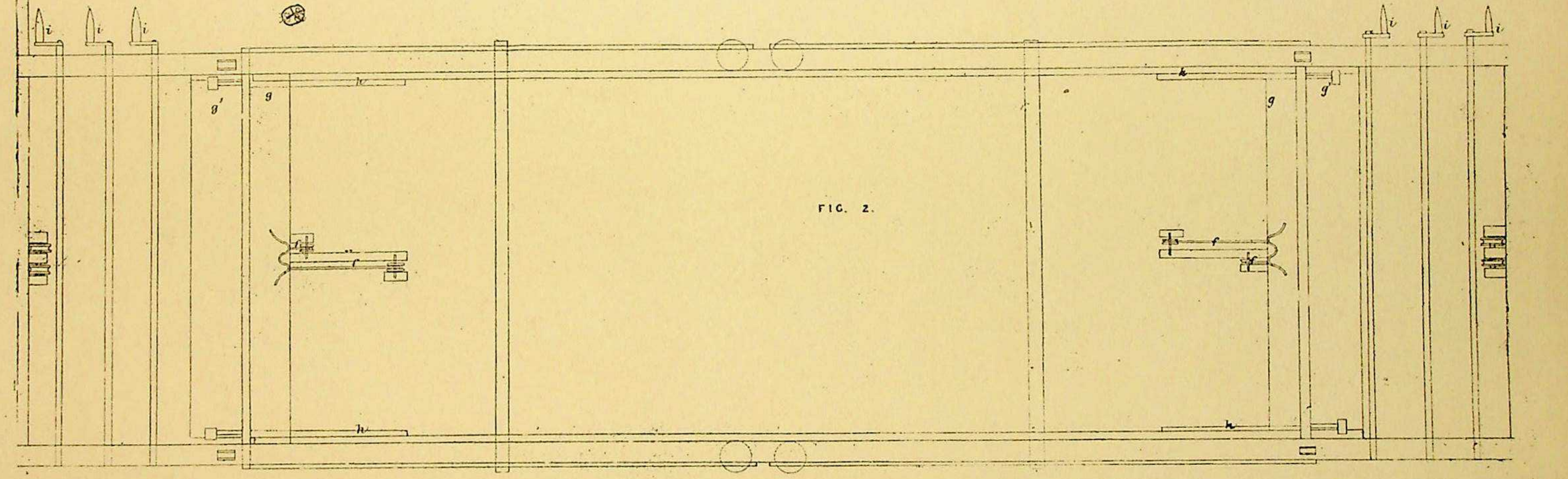


FIG. 3.

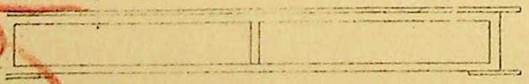


FIG. 1.

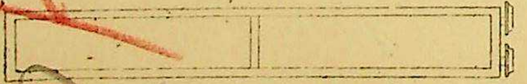


FIG. 6.

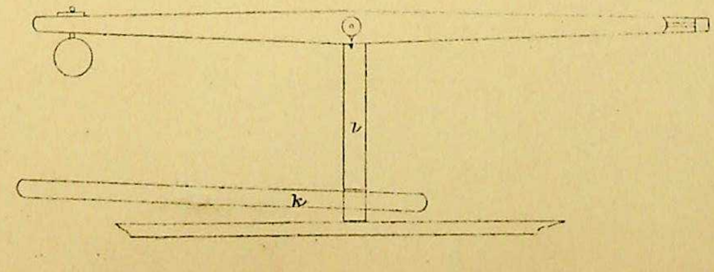
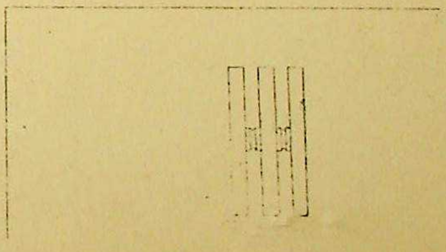


FIG. 5.



87. OILS, FATS & GL
Candles & Apparat

A.D. 1867, *7th December.* N° 3490.

Candle Dipping Machine.

LETTERS PATENT to John Beatty, of Ballymena, in the County of Antrim, Ireland, for the Invention of "A NEW OR IMPROVED CANDLE DIPPING MACHINE."

Sealed the 6th March 1868, and dated the 7th December 1867.

PROVISIONAL SPECIFICATION left by the said John Beatty at the Office of the Commissioners of Patents, with his Petition, on the 7th December 1867.

I, JOHN BEATTY, of Ballymena, in the County of Antrim, Ireland, do hereby declare the nature of the said Invention for "A NEW OR IMPROVED CANDLE DIPPING MACHINE," to be as follows:—

This Invention relates to the construction of a new or improved machine for dipping candles, by the use of which great rapidity of work is effected with a corresponding saving of labor and expense.

The machinery consists of a series of upright timber or other supports or standards running the entire length of the machine on both sides and secured to a suitable foundation; these uprights or standards carry two parallel horizontal beams, somewhat on the principle of a gantry for travelling cranes or other travelling apparatus; the standards also serve to contain the bearings of the various shafts for actuating the operations herein-after described, and also for the bearings of the levers and lifting apparatus ; they also support the rails for the traverse of the candles on their frames and carriages and form the basis of the general structure.

The principle of the Invention consists in a system of alternate dipping at each end of the machine, and of causing the candles when dipped to be elevated or raised in their racks or trays and sent to the other end of the machine by a carriage on a fixed line of rails ; thus the candles are dipped alternately and conveyed from end to end of the machine for that purpose, becoming cool during their transit. The rods are to be filled with wicks in the usual way, and when filled they are to be placed upon racks or trays which exactly fit the place they are to occupy in the carriages, which consist of strong oblong square frames, and may be made of any size to fit the breadth of guage of rails on which they are to run. In the machine described they are 20 feet long by 3 feet wide, with two small railway wheels at each end having iron slides at the bottom. These slides being pushed back leave room for the rods with the wicks, which when put in their places are easily held there by pushing the slides forward, and thus the carriages are each filled in about 2 minutes with their complement of rods, viz., 130 for each. The wick is also separated and straightened by a rake or comb as it is being put on the carriage, and it is kept in its place on the rods by a saddle made fast to the carriage fitting closely on each rod. When thus filled with wick each carriage being on the filling rail is pushed forward on the moveable rail on which the carriage is secured by two stops in each side. This rail can then by means of a handle be let down, and when the wick is dipped in the melted fat contained in a large dip tub (20 feet × 3 feet) kept sufficiently hot by close steam and filled as required by liquid fat passing through pipes similarly heated ; it is then by the same handle raised up, and by means of a small lever firmly bound opposite one of the four stationary lines of rail which are by strong posts supported off the floor, and at such distances above each other that carriages containing the rods, with wick or candles, can run in close succession on each line without touching those on the line above or below them. Two of these lines of rail from each end of terminus run to the other with a slight declivity, and when the moveable rail is fastened as above described opposite one of these the carriage with the wick dipped is by the turning of another handle easily pushed off from the moveable rail to one of the declining stationary lines of rail, and so on carriage after carriage is filled, dipped, and pushed off until these two lines of rail are filled with 17 carriages, or as many as the length of rail is capable of holding on each. A similar operation is being carried on by the other dipper at the other end of the machine, by which the two lines with the declivity from his end are likewise filled. Then each dipper commences to take off the lines that have been filled by the other; this is easily done by the moveable rail being fixed opposite one of these lines and by the stops on that side on which the carriage is now to enter being lifted up by the pulling of a small cord and let down again as soon as the carriage is on, the moveable rail is then lowered and the wick on the carriage dipped and pushed off as before on one of the two lines having the declivity from him. Thus each dipper at his own end continues his work until the candles are fit for "dripping," then by means of a third handle the drip board being placed on another line of rail is brought over, and when the candles are dripped it is by the same handle rolled back again. Thus the two dippers, each at his own end, continue the work until the candles are supposed to be near the weight wanted, and then the large levers to which the moveable rail at each end is bound are by means of another set of levers raised so as to act as a beam, by which each dipper weighs his part of the candles so as to bring them exactly to the size required. The candles thus dipped in about nine or ten hours are all on the 8,840 rods, and assuming each rod to carry three pounds of candles there are 26,520 lbs. or 11 tons 16 cwt. 3 qrs. 4 lbs. of candles. Thus each man dips nearly 3 tons in about 4 or 5 hours. The candles are then by means of the moveable rail brought over a frame placed on the drip board over the dip tub, and the slides being pulled back the rods fall on the frame and are then lifted and put aside to be tied in pounds.

Instead of dipping the candles alternately at each end of the machine they may be dipped only at one end and caused to travel to and from the same dipping vat by the system of declining rails.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said John Beatty in the Great Seal Patent Office on the 6th June 1868.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, John Beatty, of Ballymena, in the County of Antrim, Ireland, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Seventh day of December, in the year of our Lord One thousand eight hundred and sixty-seven, in the thirty-first year of Her reign did, for Herself, Her heirs and successors, give and grant unto me, the said

John Beatty, Her special licence that I, the said John Beatty, my executors, administrators, and assigns, or such others as I, the said John Beatty, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "A NEW OR IMPROVED CANDLE DIPPING MACHINE," upon the condition (amongst others) that I, the said John Beatty, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said John Beatty, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

My Invention relates to the construction of a new or improved machine for dipping candles, by the use of which great rapidity of work is effected with a corresponding saving of labor and expense.

The machinery consists of a series of upright timber or other supports or standards running the entire length of the machine on both sides and secured to a suitable foundation; these uprights or standards carry two parallel horizontal beams somewhat on the principle of a gantry for travelling cranes or other travelling apparatus, the standards also serve to contain the bearings of the various shafts for actuating the operations herein-after described and also for the bearings of the levers and lifting apparatus; they also support the rails for the traverse of the candles on their frames and carriages and form the basis of the general structure.

The principle of the Invention consists in a system of alternate dipping at each end of the machine and of causing the candles when dipped to be elevated or raised in their carriages and sent to the other end of the machine on the fixed line of rails, thus the candles are dipped alternately and conveyed from end to end of the machine for that purpose, becoming cool during their transit. The rods are to be filled with wicks in the usual way, and when filled they are to be placed upon racks or trays which exactly suit the place they are to occupy in the carriages, which consist of strong oblong square frames and may be made of any size to fit the breadth of guage of the rails on which they are to run. In the machine described they are 20 feet long by 3 feet wide with two small railway wheels at each end having iron slides at the bottom; these slides being pushed back leave room for the rods with the wicks, which when put in their places are easily held thereby, pushing the slides forward, and thus the carriages are each filled in about 2 minutes with their complement of rods, viz. 130 for each. The wick is also separated and straightened by a rake or comb as it is being put on the carriage, and it is kept in it place on the rods by a saddle made fast to the carriage fitting closely on each rod. When thus filled with wick each carriage being on the filling rail is pushed forward on the moveable rail on which the carriage is secured by two "stops" in each side. This rail can then by means of a handle be let down, and when the wick is dipped in the melted fat contained in a large dip tub (20 feet by 3 feet) kept sufficiently hot by close steam and filled as required by liquid fat passing through pipes similarly heated it is then by the same handle raised up and by means of a small lever firmly bound opposite one of the four stationary lines of rail, which are by strong posts supported off the floor and at such distances above each other that carriages containing the rods, with wick or candles, can run in close succession on each line without touching those on the line above or below them. Two of these lines of rail from each end of terminus run to the other with a slight declivity, and when the moveable rail is fastened as above described opposite one of these the carriage with the wick dipped is by the turning of another handle easily pushed off from the moveable rail to one of the declining stationary lines of rails, and so on carriage after carriage is filled, dipped, and pushed off until these two lines of rail are filled with 17 carriages or as many as the length of rail is capable of holding on each. A similar operation is being carried on by the other dipper at the other end of the machine by which the two lines with the declivity from his end are likewise filled. Then each dipper commences to take off the lines that have been filled by the other; this is easily done by the moveable rail being fixed opposite one of these lines and by the "stops" on that side on which the carriage is now to enter being lifted up by the pulling of a small cord and let down again as soon as the carriage is on; the moveable rail is then lowered and the wick being dipped the carriage is then pushed off as before on one of the two lines having the declivity from him. Thus each dipper at his own end continues his work until the candles are fit for "dripping," then by means of a third handle the drip board being placed on another line of rail is brought over the dip tub, and when the candles are "dripped" it is by the same handle rolled back again. Thus the two dippers each at his own end continue the work until the candles are supposed to be near the weight wanted, and then the large levers to which the moveable rail at each end is bound are by means of another set of levers raised so as to act as a beam by which each dipper weighs his part of the candles so as to bring then exactly to the size required. The candles thus dipped in about nine or ten hours are all on the 8,840 rods, and assuming each rod to carry three pounds of candles there are 26,520 lbs. or 11 tons 16 cwt. 3 qrs. 4 lbs. of candles. Thus each man dips nearly 3 tons in about 4 or 5 hours. The candles are then by means of the moveable rail brought over a frame placed on the drip board over the dip tub and the slides being pulled back the rods fall on the frame and are then lifted and put aside to be tied in pounds.

In order that my said Invention may be more fully understood I annex the accompanying Drawings in which Fig. 1 represents a horizontal mid section of the machine shewing one of the internal sides; Fig. 2 is a plan view of the machine, and Figs. 3 and 4 plans of the tray and carrier on wheels.

a, *a*, represent the standards, and *b* the horizontal beam or top rail; *c*, *c*, *c*, *c*, represent the double series of fixed rails set at reverse declivities, as described; *d*, *d*, are the extremities of the levers and moveable or ascending and descending rails; and *e*, *e*, the shafts on which the levers work; these levers are operated by cords, pullies, crank handles, and shafts shewn by the letters *f*, *f*, *f*, and are provided with counterweights, as shewn; *g*, *g*, are the dipping vats, shewn in dotted lines and covered by the dripping board g^1, g^1, which are caused to move or slide horizontally on the rails *h*, *h*, by means of the cords, pullies, and shaft, with crank handle denoted by *i*, *i*, *i*. Fig. 5 represents an end view of the uprights containing the pullies for the working of the cords to actuate the dripping board. When the carriage with wicks or candles arrives at either end of the machine it is secured by a turning horizontal bar with projections thereon which gear into the standards.

Fig. 6 shews an outside view of the balance lever and shaft; it is actuated by the handle *k* which elevates the vertical stem *l*, on which the V bearing of the shaft rests on the principle of a steelyard balance when the weighing operation is required. Instead of dipping the candles alternately at each end of the machine they may be dipped only at one end and caused to travel to and from the same dipping vat by the system of declining rails.

Having now described the nature of my said Invention, and the manner in which the same is to be performed, I would remark in conclusion that I do not limit myself to the size or dimensions of machinery which I have described, as the same may be varied, neither do I restrict myself to the mechanical appliances for actuating the moving parts, since substitutes may be used for cords and pullies, or their position may be varied; but what I claim and desire to be secured to me by the herein in part recited Letters

Patent are, the general arrangement and combination of parts constituting improved machinery for dipping candles, whereby they are alternately dipped at each end of the machine, and especially the right of making, using, and vending the railway principle as applied to the dipping of candles, viz., the motion of the candles to and from the dipper by any kind of carriage or carriages on fixed declining rails, whereby the candles become cool in their transit and ready for fresh dipping, substantially in the manner herein specified and illustrated by the Drawings annexed.

In witness whereof, I, the said John Beatty, have hereunto set my hand and seal, this Twenty-fifth day of May, in the year of our Lord One thousand eight hundred and sixty-eight.

JOHN BEATTY. (L.S.)

Witness,
ALEX. PRINCE,
Office for Patents,
No. 4, Trafalgar Square,
Charing Cross.

LONDON:
Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1868.